

REJECTIONS UNDER 35 U.S.C. 112

The Examiner has rejected claims 2, 10, 18-21, 27-28, 59-60, 69, and 70 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Regarding claims 2, 10, 18, 21, 27, 59, 60, 69, and 70, the Examiner states that the terms "registration" and "register" is "a relative term which renders the claims indefinite." Applicant respectfully disagrees.

Concerning claims 2, 18-21, 59, and 60, Applicant directs the Examiner's attention to Fig. 1 and the specification at page 9, lines 7-14 which provide an adequate explanation to one of ordinary skill in the art as to the meaning of "grooves in registration."

Regarding claim 10, Applicant directs the Examiner's attention to, for example, Figs. 6 and 7 and the specification at page 17, line 5 through page 18, line 5 which provide an adequate explanation to one of ordinary skill in the art as to the meaning of "detents ... spaced relative to the spacing among the rows of channels of the second substrate, so that locating the friction reducing element in respective detents of the first and second substrates provides registration between respective channels of the first and second substrates."

Regarding claims 27 and 70, Applicant directs the Examiner's attention to, for example, Fig. 8 (for example, elements 831 and 832) and the specification at page 21, lines 10-14 which provide an adequate explanation to one of ordinary skill in the art as to the meaning of "a probe and ... a complementary socket for registering the basechip to the lidchip" (as recited in claim 27) and as to the meaning of "a probe ...and a complementary socket ... for registering the chip within the passageway"(as recited in claim 70).

*my examiner's review*

Likewise, regarding claim 69, Applicant directs the Examiner's attention to, for example, Fig. 8 (for example, elements 826 and 822) and the specification at page 19, lines 12-16 which provide an adequate explanation to one of ordinary skill in the art as to the meaning of "chip grooves [that] may register with the grooves of the passageway to provide the fiber channels."

Claim 28 has been amended to delete reference to the "plurality of channels".

Accordingly, for the above reasons, Applicant respectfully submits that the objected-to language is not indefinite. Applicant therefore respectfully requests that the Examiner withdraw the rejections to claims 2, 10, 18-21, 27-28, 59-60, 69, and 70.

### REJECTIONS UNDER 35 U.S.C. 103

The Examiner has rejected claims 38-40, 45-46, 63-64, 71-73, and 75-76 under 35 U.S.C. 103(a) as being unpatentable over Basavanhally (US 5,337,384) in view of Kaplow (US 5,440,655). The Examiner states that “Basavanhally discloses a fiber optic array switch (first sentence of abstract)...” Applicant respectfully disagrees. Basavanhally does not disclose an optical switch, but rather discloses an “optical fiber connector” in which two arrays of fibers are aligned to one another in fixed relation.

As a first matter, Applicant respectfully notes that the first sentence of the Basavanhally abstract does not mention any “switch”. Secondly, Figs. 1 and 2 illustrate a structure in which two fiber arrays are held in fixed relation to one another. The Basavanhally connector includes two securing plates 12, 13 each of which includes a plurality of apertures 16 for retaining fibers therein. Each of the securing plates is mounted to a respective pair of support members 29, 30, 31, 32. The support members in turn are held in place in fixed by alignment pins 27 so that the apertures of each securing plate are aligned and so that the securing plates cannot move transversely relative to one another. Hence, the Basavanhally connector cannot effect transverse movement of the securing plates to effect switching of the fibers. In particular, Basavanhally expressly states that

*[T]he biasing members 35 can be locked into the position shown in FIG. 2. The next step is to bond permanently the support members 31 and 32 to securing plate 12 and to guiding plate 14. This is done by injecting, for example, epoxy into the assembly. After the epoxy has cured, it can be appreciated from FIG. 2 that support members 31 and 32 are bonded in a position separated by a distance determined by the separation distance of alignment pins 27.*

*Next, the process is repeated for the purpose of bonding support members 29 and 30 to securing plate 13 and guiding plate 15. ...With their positions thus fixed, support members 29 and 30 are permanently bonded as by epoxy to securing plate 13 and guiding plate 15. ... The bonding fixes support members 29 and 30 with respect to alignment pins 27 and aligns the securing plate 13 with securing plate 12.... FIG. 4 shows the completed connector member 40.*

*The component optical fibers 38 are permanently held in place by epoxy 48. In the same manner, optical fibers 49 are held in place by epoxy 50 in a connector*

*member 51.* (Column 3, line 45 - column 4, line 6 and column 4, lines 52-56.  
Emphasis added.)

This structure is responsive to the long-felt need identified by Basavanhally, that is the need “for a method for conveniently splicing or interconnecting abutting optical fiber bundles...” (Column 1, lines 32-35.) The goal of splicing or interconnecting abutting optical fibers is the antithesis of switching. Hence, Basavanhally fails to disclose or suggest a fiber optic array switch in which the “first array is displaced relative to the second array to effect switching” as recited in Applicant’s claim 38.

Furthermore, since Basavanhally is not directed to optical switching but rather the opposite – splicing or interconnecting fibers to hold them in fixed relation – there can be no motivation to modify Basavanhally based on the teaching of Kaplow to turn Basavanhally into an optical switch. Rather, Basavanhally teaches away from such a modification, since Basavanhally is concerned with coupling fibers in fixed relation. Indeed, modifying Basavanhally to permit motion of the two fiber arrays transversely relative to one another would create a connector more susceptible to losing alignment between fibers. Accordingly, Basavanhally and Kaplow is not a proper combination. Moreover, Kaplow, like Basavanhally, fails to disclose or suggest at least the claimed feature of “a friction-reducing element disposed in the first groove ... to reduce friction between the first array and the second array as the first array is displaced relative to the second array to effect switching.” For example, referring to Fig. 11 of Kaplow, elements 90, 91 and 92 do not move relative to one another, because the sphere disposed between the fibers in each of elements 90 and 91 engage in a corresponding pit in element 92 thereby locking elements 90 and 91 in fixed location relative to element 92. Thus, even if Basavanhally and Kaplow were combined, the combination would fail to disclose each and every element recited in claim 38. For these reasons, Applicant respectfully requests that the Examiner withdraw the rejection of claim 38, as well as claims 39, 40, 45-46, 63-64, 71-73, and 75-76 which depend, directly or indirectly, therefrom.

In view of the foregoing amendments and remarks, it is believed that the claims in this application are now in condition for allowance. Early and favorable reconsideration is

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respectfully requested. The Examiner is invited to telephone the undersigned in the event that a telephone interview will advance prosecution of this application.

Respectfully submitted,



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**ATTACHMENT**

The following are the marked up copies of the claims as amended. Bracketed text has been deleted, and underlined text has been inserted.

28. (Amended Once) The switch according to claim 1 wherein the at least one channel of the first and second substrates [each] comprise [a plurality of] channels disposed in a two-dimensional array of channels.